

- 1           1.     In a computer that communicates with other computers over a network, a  
2 method for automatically updating software components at the computer, the method  
3 comprising the acts of:  
4                 accessing a data file, wherein the data file includes:  
5                         content data; and  
6                         component information and version information specifying required  
7 software components and required versions thereof that are to be used to  
8 process the content data;  
9                 comparing the component information and the version information with  
10 software components installed at the computer and identifying a required version of  
11 a required software component that is not yet installed at the computer;  
12                 requesting and receiving the required version of the required software  
13 component from one of said other computers; and  
14                 using the required version of the required software component to process  
15 the content data.  
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17           2.     The method of claim 1, further comprising the act of receiving the data file  
18 from a server associated with the network.  
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20           3.     The method of claim 1, wherein the act of identifying a required version of  
21 a required software component that is not yet installed at the computer comprises the act of  
22 determining that no version of the required software component is installed at the  
23 computer.  
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1           4.       The method of claim 1, wherein the act of identifying a required version of  
2 a required software component that is not yet installed at the computer comprises the act of  
3 determining that a previous version of the required software component is installed at the  
4 computer.

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6           5.       The method of claim 1, further comprising the act of installing the updated  
7 component files.

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9           6.       The method of claim 1, further comprising the act of receiving the data file,  
10 wherein:

11                   the data file is received from a source external to the computer;

12                   the data file is a web document; and

13                   the required software component includes functionality associated with a  
14 feature of a web browser operating at the computer.

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16           7.       The method of claim 1, further comprising the act of identifying a network  
17 location from which the required version of the required software component is to be  
18 received.

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20           8.       The method of claim 7, wherein the act of identifying the network location  
21 comprises the act of requesting and receiving from a first computer associated with the  
22 network an update table that specifies the network location.

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24           9.       The method of claim 1, further comprising the acts of:

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determining that a required version of another required software component is already installed at the computer; and

processing the content data with the required version of said other required software component already installed at the computer without requesting or receiving the required version of said other software component from any other computer associated with the network.

10. The method of claim 1, wherein the act of requesting and receiving the required version of the required software component is conducted without requesting or receiving an updated copy of an entire software program that includes both the required version of the required software component and other required software components.

11. The method of claim 1, wherein the component information and the version information are encoded in the data file by a publisher of the data file, the data file having been generated by the publisher using development software that includes functionality corresponding to the functionality of the required version of the required software component that is requested and received from said other computer.

1           12. In a computer that communicates with other computers over a network, a  
2 method for automatically updating software components of a processing program at the  
3 computer so that the updated software components can be used to process content data of a  
4 data file, the method comprising the acts of:

5                   opening the data file using the processing software, wherein the data file  
6 includes:

7                           content data; and

8                           component information and version information specifying required  
9 software components and required versions thereof that are to be used to  
10 process the content data;

11                   comparing the component information and the version information with  
12 data identifying software components already installed at the client computer and  
13 versions of the installed software components;

14                   based on the act of comparing, identifying a required version of a required  
15 software component that is not yet installed at the computer;

16                   requesting an update table from another computer associated with the  
17 network, wherein the update table specifies a network location from which the  
18 required version of the required software component can be obtained;

19                           receiving the requested update table;

20                   based on the update table, identifying said network location from which the  
21 required version of the required software component can be obtained;

22                   requesting the required version of the required software component from  
23 the network location;  
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1 receiving the required version of the required software component from the  
2 network location; and

3 installing the required version of the required software component, thereby  
4 updating the software components of the processing software such that the required  
5 version of the required software component can be used to process the content data.  
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7 13. The method of claim 12, wherein at least some of the computers are server  
8 computers, the method further comprising the act of receiving the data file from one of the  
9 server computers.  
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11 14. The method of claim 13, wherein at least one of the server computers is a  
12 software server related to the processing program of the client computer.  
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14 15. The method of claim 14, wherein the act of receiving the data file comprises  
15 the act of receiving a web document from one of the server computers, wherein the  
16 processing program is a web browser and the required version of the required software  
17 component is associated with the web browser.  
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19 16. The method of claim 14, wherein the act of requesting the update table  
20 comprises the act of requesting the update table from the software server.  
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22 17. The method of claim 16, further comprising the act of sending the update  
23 table requested from the software server through the network to the computer.  
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1           18.     The method of claim 12, further comprising the step of sending the required  
2 version of the required software component from the network location to the computer  
3 through the network.

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5           19.     The method of claim 12, wherein the network is a global communications  
6 network.

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8           20.     The method of claim 12, wherein the act of identifying a required version of  
9 a required software component that is not yet installed at the computer comprises the act of  
10 determining that no version of the required software component is yet installed at the  
11 computer.

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13           21.     The method of claim 12, wherein the act of identifying a required version of  
14 a required software component that is not yet installed at the computer comprises the act of  
15 determining that a previous version of the required software component has already been  
16 installed at the computer.

22. A computer program product for implementing, in a computer that communicates with other computers over a network, a method for automatically updating software components at the computer, the computer program product comprising:

a computer-readable medium carrying computer-executable instructions that, when executed, cause the computer to perform the method, wherein the method comprises the acts of

accessing a data file, wherein the data file includes:

content data; and

component information and version information specifying required software components and required versions thereof that are to be used to process the content data;

comparing the component information and the version information with software components installed at the computer and identifying a required version of a required software component that is not yet installed at the computer;

requesting and receiving the required version of the required software component from one of said other computers; and

using the required version of the required software component to process the content data.

23. The computer program product of claim 22, wherein the act of identifying a required version of a required software component that is not yet installed at the computer comprises the act of determining that no version of the required software component is installed at the computer.

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24. The computer program product of claim 22, wherein the act of identifying a required version of a required software component that is not yet installed at the computer comprises the act of determining that a previous version of the required software component is installed at the computer.

25. The computer program product of claim 22, wherein the required version of the required component is associated with browser software that operates at the computer and processes the content data.

26. The computer program product of claim 22, wherein the method further comprises the act of installing the required version of the required software component after the required version of the required software component is received at the computer.



1           27.     A system of networked computers that is capable of automatically updating  
2 software components of a processing program of a computer included in the system so that  
3 the updated software components can be used to process content data of a data file, the  
4 system comprising

5                     a computer, wherein the computer includes a memory module which stores  
6 software components of the processing program that are used to process the data  
7 file;

8                     a plurality of servers with memory modules that store updated software  
9 components, wherein one of the plurality of servers is a software server with a  
10 memory module that stores a table of available updated software components  
11 related to the processing program and the network locations from which the  
12 updated software components can be obtained, wherein the computer uses a  
13 communication module to interface with the plurality of servers;

14                     a communication network that connects the computer with the plurality of  
15 servers; and

16                     processing means at the computer for:

17                             comparing component information and version information of a data  
18 file specifying required software components and required versions thereof  
19 that are to be used to process content data included in the data file with  
20 software components installed at the computer and identifying a required  
21 version of a required software component that is not yet installed at the  
22 computer; and

23                             automatically obtaining the required version of the required software  
24 component from a network location specified in said table.

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2 28. The system of claim 27, wherein the processing means for automatically  
3 obtaining the required version of the required software component comprise processing  
4 means for:

5 creating a list of the required version of the required software component  
6 and any other required versions of other required software components;

7 obtaining the table of available updated software components;

8 requesting the required version of the required software component from  
9 the network location specified in said table;

10 receiving the required version of the required software component; and

11 installing the required version of the required software component such that  
12 the processing program can use the required version of the required software  
13 component to process the content data of the data file.

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15 29. The system of claim 27, wherein the network locations from which the  
16 updated software components can be obtained are associated with addresses of the plurality  
17 of servers.

30. A system for automatically updating software components of a processing program of a computer system so that the updated software components can be used to process content data of a data file, the system comprising:

means for opening a data file, wherein the data file includes:

content data; and

component information and version information specifying required software components and required versions thereof that are to be used to process the content data;

means for reading the component information and the version information;

means for logically comparing the component information and the version information with the software components already installed at the computer to determine whether any required version of any required software component is not yet installed at the computer;

means for requesting from a source external to the computer said any required version of said any required software component that is not yet installed at the computer;

means for receiving said any required version of said any required software components sent by the source; and

means for installing said any required version of said any required software component such that the computer can use updated versions of the required software components to process the content data.

31. The system of claim 30, further comprising means for receiving the data file from a computer associated with the network.

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32. The system of claim 30, further comprising means for identifying a network location associated with said source external to the computer from which at least one of said any required versions of said any software components can be obtained.

33. The system of claim 30, wherein the means for logically comparing is capable of comparing the component information and the version information with data identifying software components already installed at the client computer and versions of the installed software components.